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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/313,058	05/17/1999	J. RICHARD AYLWARD	02103/354001	3409

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EXAMINER	
MEI, XU	

ART UNIT	PAPER NUMBER
2644	

DATE MAILED: 11/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/313,058	AYLWARD ET AL.	
	Examiner	Art Unit	
	Xu Mei	2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 1999*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) Gib.
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *05/17/1999*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. Continuation data of the present application indicated on page 1 of the specification: "This application is a continuation-in-part of application Serial No._____, filed _____, entitled ENCODING AND DECODING which is a continuation of Application of Application Serial No. 08/796,285 filed February 7, 1997, now abandoned" need to be updated. The PTO record indicates that Application Serial No. 08/796,285 is allowed as US Pat. 6,711,266, **not** abandoned as stated above. Clarification is required.***Claim Rejections - 35 USC § 112, 2nd Paragraph***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There are numerous of indefinite limitations in the claims, the examples are:

In claim 1, it recites the limitation of "the degree of correlation of two of the channels" in line 2. There is insufficient antecedent basis for this limitation in the claim.

In various claims (claims 1, 5 for example), the recited limitation "said two channels" is lacks antecedent basis.

In claim 10, it recites the limitation of "the degree of correlation of two of the channels" in line 2. There is insufficient antecedent basis for this limitation in the claim.

In claims 13 and 14, each claim recites the limitation of "said first mode and said second mode". There is insufficient antecedent basis for this limitation in the claim.

In claim 15, it recites the limitation of "the correlation" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on

sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-21 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Karagosian et al (US-5,727,068, hereafter, Karagosian).

Regarding claims 1-21, Karagosian discloses claimed invention of a method for processing multi-channel audio signals or method for decoding an encoded multi-channel audio signal or an apparatus for processing multi-channel audio signals as recited. Descriptions of Figures 1-3, 6 in columns indicated the decoder 200 has three base modes of operation: surround-dominant mode, center-dominant mode and left-right mode (i.e., read on the first and second normalization mode as claimed). Controller 204 steers the operating mode of decoder 200 using N and P control signals. When the P control signal is at or near its maximum positive value and the N control signal is at or near zero, then decoder 200 operates in surround-dominant mode. When the P control signal is at or near zero and the N control signal is at or near its maximum negative value, then decoder 200 operates in center-dominant mode. When both the P and N control signals have values at or near zero, then decoder 200 operates in left-right mode. Thus, decoder 200 operates in (i) surround-dominant mode when controller 204 determines that the

input audio signals have a maximum positive correlation (i.e., the signals are in phase), (ii) in center-dominant mode when controller 204 determines that the input audio signals have a maximum negative correlation (i.e., the signals are out of phase) and in (iii) left-right mode when the audio input channels are uncorrelated or have a relative phase shift of 90 degree (determining a degree of correlation of different channel signals).

Decoder 200 additionally operates in combination modes that combine any of the three base modes to varying degrees when controller 204 determines either a positive or negative correlation but which is not maximum. In this case, both the P and N control signals have a non-zero voltage but are not at their maximum or minimum values. For example, if controller 204 determines that the encoded input channels are positively correlated, but not to a maximum extent, then the decoder 200 will operate in a combined surround-dominant and left-right mode (i.e., determination of partial correlation of 2 signals as in claims 10-14).

The decoder 200 of the present invention generates a facsimile of the encoded L, R, C, and S channels on each output terminal 207a-207d (output channels L', R', C', and S', respectively). Each output signal is a weighted summation of

the left and right input channels as received from input terminals 201a, 201b and selectively attenuated versions of the left and right input channels received from expanders 205a-d. The weights (linearly weight or gain control applied to the different channel signals) used by each signal combiner 206a-d are selected to optimize decoder performance in each of the surround-dominant, center-dominant and left-right operating modes. Selection of the weights for each of the signal combiners 206a-d is discussed below.

Referring now to compressors 202a, 202b shown in FIG. 2, compressors 202a, 202b are each preferably coupled to respective input terminals 201a, 201b via high pass filters (not shown). Compressors 202a, 202b normalize the amplitude of the encoded audio signals on the left and right input channels. The resulting output is a normalized (constant amplitude) version of the respective signals. The normalized outputs of compressors 202a, 202b are coupled to controller 204. By normalizing the amplitude of the left and right signals, the controller 204 is not affected by amplitude variations in the encoded input signals.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Iwahara, Mandell et al (US-4,799,260, 4,941,177), Aylward (US-4,984,273, 6,711,266, 6,721,425), Tanaka et al, Aarts, Numazu et al, and Gerzon are made of record here as pertinent art to the claimed invention. The cited prior art above discloses various audio signal processing devices including signal channel correlation detection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xu Mei whose telephone number is 703-308-6610. The examiner can normally be reached on Monday-Friday (9:30-6:00), alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W Isen can be reached on 703-305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Xu Mei
Primary Examiner
Art Unit 2644
10/28/2004